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10/755,920

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EXAMINER

YANG, CLARA I

ART UNIT

PAPER NUMBER

2635

DATE MAILED: 03/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/755,920

Applicant(s)

QUALICH ET AL.

Examiner

Clara Yang

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-24 is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-18 and 25-32 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Allowable Subject Matter

1. Claims 19-24 are allowed.
2. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The meaning of "recalibrating at least one of a plurality of parameters associated with a wake-up circuit to be within a predetermined limit" is unclear. Possible meaning include: (a) "recalibrating at least one of a plurality of parameters associated with a wake-up circuit such that the wake-up circuit's response is within a predetermined limit"; (b) "recalibrating at least one of a plurality of parameters associated with a wake-up circuit when the wake-up circuit's response is within a predetermined limit"; or (c) "recalibrating at least one of a plurality of parameters within a predetermined limit, wherein the parameters are associated with a wake-up circuit". The examiner interprets the limitation to mean, "recalibrating at least one of a plurality of parameters associated with a wake-up circuit such that the wake-up circuit's response is within a predetermined limit".

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 7, 10, 12-14, 16-18, and 25-31 are rejected under 35 U.S.C. 102(b) as being anticipated by van Dinteren et al. (US 5,909,093).

Referring to claim 7, the term “automotive control system” in the preamble fails to limit the claim because the body of the claim following the preamble is a self-contained description of the structure, does not depend on the preamble for completeness, and makes no reference back to the automotive control system; hence “automotive control system” lacks patentable weight. Van Dinteren discloses a remotely controlled blind system, as shown in Figs. 1 and 3, comprising transmitter 30 and receiver 50 (see Col. 4, lines 31-36). Van Dinteren’s receiver 50 includes: (a) processor unit 53 (see Col. 5, lines 22-56); and (b) wake-up unit 54 coupled to processor unit 53 (see Col. 5, lines 22-31). Because van Dinteren discloses that processor unit 53 has the ability to check the validity of received signals, send direction commands to drive circuit 55, learn the positions of the blind arrangement, disregard received commands for further turning motor 56 in the same direction when the blind arrangement is in an ultimate tilt position, calibrate wake-up unit 54, etc. (see Col. 5, lines 63-64 and Col. 6, lines 2-31), processor unit 53 must be coupled to (c) a memory storing, wherein the memory stores (d) a program that enables processor unit 53 to perform a plurality of functions, which include: (1) applying charging pulse 109 (i.e., a voltage) to wake-up unit 54 for a pulse width T_c (i.e., a first time

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period) (see Col. 2, lines 29-44; Col. 6, lines 20-23; and Col. 8, lines 1-8 and 29-32); (2) measuring the time between the arrival of charging pulse 109 at wake-up unit 54's capacitive elements and the moment when output 111 is detected (i.e., a second time period) (see Col. 2, lines 44-49 and Col. 8, lines 29-36); (3) determining if the response is within a predetermined limit, such as 750 ms (see Col. 2, lines 44-49 and Col. 8, lines 33-36); and (d) recalibrating pulse width T_c if the response is not within the predetermined limit (see Col. 2, lines 49-54 and Col. 8, lines 33-36).

Regarding claim 10, van Dinteren's calibration routine includes adjusting/updating pulse width period T_c of charging pulse 109 with incremental steps of 96 μ s each to maintain wake-up circuit 54's wake time T_w at a constant value, such as 750 ms (see Col. 2, lines 29-44 and Col. 8, lines 29-32).

Regarding claim 12, as shown in Fig. 6, van Dinteren's wake-up unit 54 comprises: (a) resistor 106 having a first terminal coupled to ground and a second terminal; (b) resistor 104 having a third terminal coupled to resistor 106's second terminal via resistor 105 and a fourth terminal coupled to port 62 via diode 103; and (c) capacitor 107 (or capacitor 108) having a fifth terminal, which is coupled to resistor 104's third terminal, resistor 106's second terminal via resistor 105, and port 61 via the circuit formed by transistors 112 and 116, and a sixth terminal, which is coupled to ground.

Referring to claims 13, 14, and 25-27, van Dinteren teaches a remotely controlled blind arrangement, as shown in Fig. 1, comprising transmitter 30 and receiver 50 (see Col. 4, lines 31-36). As called for in claim 25, Van Dinteren's receiver 50, as shown in Fig. 3, comprises supply unit 51, detection unit 52, processor unit 53 coupled to wake-up unit 54, and drive circuit 55 (see Col. 5, lines 20-42). And as explained in the previous rejection of claim 7, processor unit 53 must have a computer/encoded program stored within a memory, which is a tangible medium, as

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called for in claims 13, 14, 25, and 27. In addition, processor unit 53 must be coupled to the memory, as called for in claim 26, in order to access the program. Regarding claims 14 and 25, per van Dinteren, the program includes: (a) a routine for applying charging pulse 109 (i.e., a voltage) to wake-up unit 54 for a pulse width T_c (i.e., a first time period) in response to an interrupt caused by a received signal becoming invalid (see Col. 2, lines 29-44; Col. 6, lines 20-23; and Col. 8, lines 1-8 and 29-32); (b) a calibration routine for measuring wake-up unit 54's wake-up time T_w (i.e., response for a second time period) (see Col. 2, lines 44-49 and Col. 8, lines 29-36); (c) a routine for determining if the response is within a predetermined limit, such as 750 ms (see Col. 2, lines 44-49 and Col. 8, lines 33-36); and (d) a routine for recalibrating pulse width T_c if the response is not within the predetermined limit (see Col. 2, lines 49-54 and Col. 8, lines 33-36).

Regarding claim 16, van Dinteren teaches the limitations of the claim as explained in the previous rejection of claim 10.

Regarding claim 17, as explained in the previous rejection of claim 13, van Dinteren's processor unit 53 applies charging pulse 109 to wake-up unit 54 in response to receiving an interrupt caused by a received signal becoming invalid (see Col. 2, lines 29-44; Col. 6, lines 20-23; and Col. 8, lines 1-8 and 29-32).

Regarding claim 18, van Dinteren discloses that processor unit 53's program includes a routine for applying a reset voltage to wake-up unit 54 in order to indicate a standby mode, wherein wake-up unit 54 remains active while processor unit 53 and detection unit 52 both return to a sleep mode (see Col. 6, lines 26-31 and Col. 7, lines 24-27, 40-46, and 63-67).

Regarding claim 28, as shown in Fig. 6, van Dinteren's wake-up unit 54 has: (a) resistor 105 connected to processor unit 53's ports 61 and 62 (see Col. 8, lines 1-28); and (b) capacitor 108

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and resistor 106 in parallel between port 62 (or port 61) and a ground/lower voltage potential (see Col. 8, lines 1-28).

Referring to claim 29, van Dinteren's method comprises the acts of: (a) determining whether an interrupt, which is generated upon a valid received signal becoming invalid, has been received (i.e., a threshold event) (see Col. 6, lines 20-23); (b) providing the interrupt to processor unit 53, thereby causing processor unit 53 to begin calibration of wake-up unit 54 (see Col. 6, lines 20-23); (c) causing processor unit 53 to detect output signal 110, which indicates a state change in wake-up unit 54, at wake-up unit 54's output 111 after supplying charging pulse 109 to wake-up unit 54's input 102 (see Col. 8, lines 1-28); (d) recalibrating charging pulse 109's T_c (i.e., a parameter associated with wake-up unit 54) such that wake-up unit 54's T_w is within 750 ms, wherein the recalibration only occurs if a valid received signal has become invalid (see Fig. 4b; Col. 6, lines 20-23; and Col. 7, lines 28-67); and (e) waiting for another interrupt if a valid signal has yet to be received (i.e., a threshold event has not occurred) (see Fig. 4b; Col. 6, lines 20-23; and Col. 7, lines 28-67).

Regarding claim 30, van Dinteren teaches that processor unit 53 accesses wake-up unit 54's switch component formed by transistors 112 and 116 via output 111 to determine whether the state change has occurred (see Col. 8, lines 1-28).

Regarding claim 31, van Dinteren teaches that processor unit 53 calibrates wake-up unit 54 after receiving one interrupt, which indicates the cessation of receiving a valid signal (see Col. 6, lines 20-23 and Col. 7, lines 59-61). The one interrupt sent to processor unit 53 upon determination that the received signal has become invalid is a threshold event; thus the threshold event comprises counting the number of times (one or none) an interrupt is provided to processor unit 53, which is connected to wake-up unit 54.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christenson (US 5,933,090) in view of van Dinteren et al. (US 5,909,093).

Referring to claim 1, Christenson's vehicle remote control system, as shown in Fig.1, comprises: (a) a vehicle (see Col. 3, lines 26-29); and (b) receiver 13 (i.e., control system) located in the vehicle and having a processor 26 and a wake-up circuit coupled to the processor (see Col. 3, lines 30-35 and Col. 5, lines 1-3). Christenson's processor 26 lacks a program for (1) providing a voltage to the wake-up circuit for a first time period once an interrupt is received by the processor; (2) monitoring the wake-up circuit for a second time period; and (3) recalibrating the wake-up circuit if a response of the wake-up circuit exceeds at least one predetermined limit.

In an analogous art, van Dinteren teaches a control system, as explained in the previous rejection of 7, comprising all the limitations of the control system called for in claim 1, including a program used by processor unit 53, wherein the program enables processor unit 53 to: (1) apply charging pulse 109 to wake-up unit 54 for a pulse width (see Col. 2, lines 29-44; Col. 6, lines 20-23; and Col. 8, lines 1-8 and 29-32); (2) measure/monitor wake-up unit 54 during the time between the arrival of charging pulse 109 at wake-up unit 54's capacitive elements and the moment when output 111 is detected (i.e., a second time period) (see Col. 2, lines 44-49 and Col. 8, lines 29-36); and (3) recalibrating pulse width T_c if the response is exceeds the predetermined limit (see Col. 2, lines 49-54 and Col. 8, lines 33-36).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Christenson's vehicle remote control system as taught by van Dinteren because regular calibration of an inexpensive wake-up circuit compensates for the intrinsic inaccuracies of the wake-up circuit's components, thereby making the wake-up circuit reliable and accurate despite the use of cheap components (see van Dinteren, Col. 2, lines 16-28).

Regarding claim 2, Christenson teaches that the control system is a remote keyless entry (RKE) system (see Col. 1, lines 13-14 and 34-41; and Col. 3, lines 11-29).

Regarding claim 3, 5, and 6, as shown in Fig. 1, Christenson's receiver 13 includes device drivers 14. Per Christenson, device drivers 14 perform functions such as locking or unlocking a vehicle door (i.e., engaging and disengaging a door lock), as called for in claim 3, and raising or lowering side and/or rear windows (see Col. 3, lines 46-55), as called for in claim 6; thus Christenson's system includes a lock actuator in communication with processor 26 via device drivers 14 (as called for in claim 3) and a window system (as called for in claim 5) formed by a motor coupled to processor 26 via device driver 14.

Regarding claim 4, on page 11 of the applicant's specification, the applicant teaches that transceiver module 40 may include a radio frequency (RF) receiver. Hence, claim 4 is understood to require an RF receiver coupled to the processor located in the vehicle. Christenson's receiver 13 includes an RF receiver formed by antenna 21 and receiver input section 22 for receiving signal 12 from transmitter 11, wherein signal 12 is an RF signal requesting the locking or unlocking of the vehicle's door (see Fig. 1; Col. 3, lines 20-29 and 46-55; and Col. 5, lines 1-11).

10. Claims 8, 9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Dinteren et al. (US 5,909,093).

Regarding claims 8, 9, and 15, van Dinteren states that processor unit 53 is able to generate charging pulse 109 and adjust charging pulse 109's pulse width with 16 incremental steps of 96 μ s each to maintain wake-up circuit 54's wake time T_w at a constant value, such as 750 ms (see Col. 2, lines 29-44 and Col. 8, lines 19-32); thus processor unit 53's computer program must include a routine for accessing at least wake-up circuit 54's wake time T_w and charging pulse 109's T_c , wherein T_w and T_c must be stored in a memory (as called for in claims 8, 9, and 15). Van Dinteren fails to expressly teach storing a minimum voltage for charging pulse 109 and adjusting the voltage (as also called for in claims 8 and 15) in order to maintain wake-up circuit 54's wake time T_w at a constant value but does suggest that processor unit 53 is able to vary other charging pulse characteristics other than T_c (see Col. 2, lines 49-54).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify van Dinteren's receiver 50 and its program such that (1) receiver 50's memory stores a voltage for charging pulse 109 in addition to charging pulse 109's T_c and (2) processor unit 53 is able to adjust charging pulse 109's voltage, which is a

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characteristic of charging pulse 109, because a processor unit having the ability to adjust both charging pulse 109's T_c and voltage is able to handle larger T_w variances than a processor unit having the ability to adjust only T_c .

11. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over van Dinteren et al. (US 5,909,093) as applied to claim 29 above, and further in view of Culbert (US 5,771,180).

Regarding claim 32, van Dinteren teaches that processor unit 53 calibrates wake-up unit 54 after a threshold event defined by the cessation of receiving a valid signal instead of a time period measured from the previous calibration of wake-up unit 54.

In an analogous art, Culbert teaches a controller (i.e., processor) calibrating the oscillator of its real-time clock (RTC) every 10 minutes in order to achieve an accuracy of 5 seconds per month without noticeable effect on battery life (see Col. 5, lines 60-65 and Col. 6, lines 60-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify van Dinteren's receiver 50 as taught by Culbert such that the threshold hold event is based on a time period from the previous calibration of the wake-up circuit in order because accuracy is maintained on a regular basis, thereby improving receiver 50's performance.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Hampshire et al. (US 5,777,816) teach a control system wherein the processor starts a calibration routine after receiving three interrupts.
- Sawafuji et al. (JP09-114560) teach an embodiment of a wake-up circuit comprising two resistors and a capacitor (see Fig. 1).

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- Leichtfried et al. (US 6,643,598) teach a system and method for calibrating a timing circuit in an RKE system.
- Marais et al. (US 2004/0174909) teach a wake-up system for a motor vehicle, wherein the wake-up circuit comprises a capacitor connected in parallel with a resistor.
- Lucy et al. (US 2005/068153) teach an RKE circuit that is duty-cycled to reduce current draw.
- Marx et al. (US 6,725,067) teach a method and system for calibrating a low frequency clock to minimize timing errors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clara Yang whose telephone number is (571) 272-3062. The examiner can normally be reached on 8:30 AM - 7:00 PM, Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Horabik can be reached on (571) 272-3068. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CY
8 March 2006


BRIAN ZIMMERMAN
PRIMARY EXAMINER